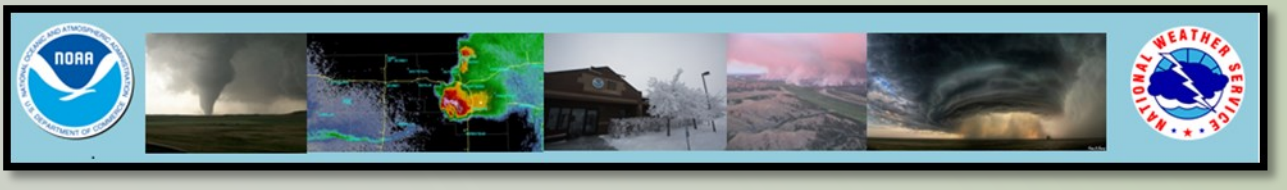
Under the Big Sky e-Letter
April 2017



A Peak Inside:

Skywarn: It's not too late to attend a Skywarn training!

30 Day Percent of Normal Precipitation (Montana)

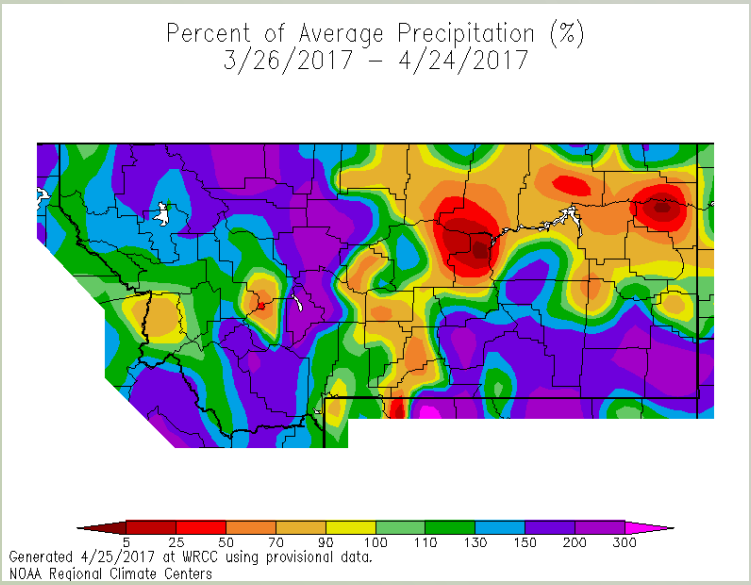


Figure 1: 30-Day Percent of Normal Precipitation.

Much of northeast Montana has observed below average precipitation over the prior 30-day period. While this has been the case here locally, portions of southeast Montana and northwest Montana have experienced 150 to 200 percent of normal precipitation over the same period.

CPC Three Month Outlook: The Climate Prediction Center released its three month outlook for temperature and precipitation for May through July on April 20, 2017. The three month outlook calls for an equal chance for above or below normal temperatures for all but the furthest southwest portions of Montana. Expectations are for above normal precipitation for the next three months. Anyone having interests in the general agriculture and/or this year's growing season should monitor updates to the outlook for changes. The latest outlook is always available here for anyone curious about additional details.

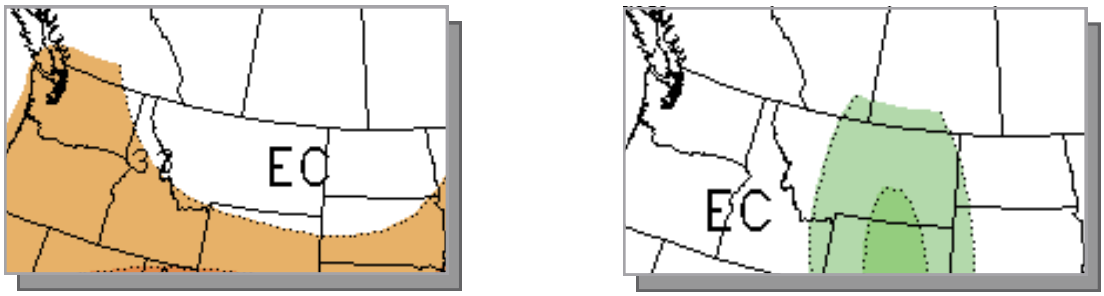


Figure 2: Climate Prediction Center three month temperature (left) and precipitation (right) outlook for May through July 2017.

Updated U.S. Drought Monitor: The latest U.S. Drought Monitor was released on Thursday April 20, 2017. Not much change is noted from recent releases. Much of the western U.S. is void of drought conditions, though there are patchy abnormally dry and moderate drought areas. The far southern tip of California also is under a severe drought in the present. Here in Montana, there are patchy areas of abnormally dry conditions in western and southeastern parts of the state.

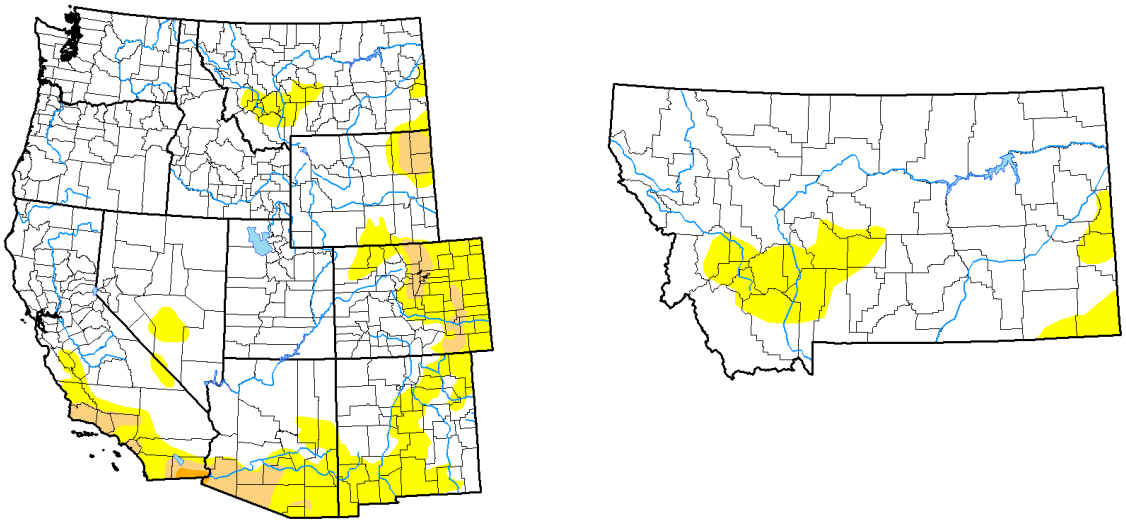


Figure 3: Latest Drought Monitor for the western U.S. (left) and Montana (right) released Thursday April 20, 2017.

U.S. & Global Climate Highlights (March 2017): The latest U.S. and global climate highlights for March 2017 are now available. A few points for you to take home are provided below.

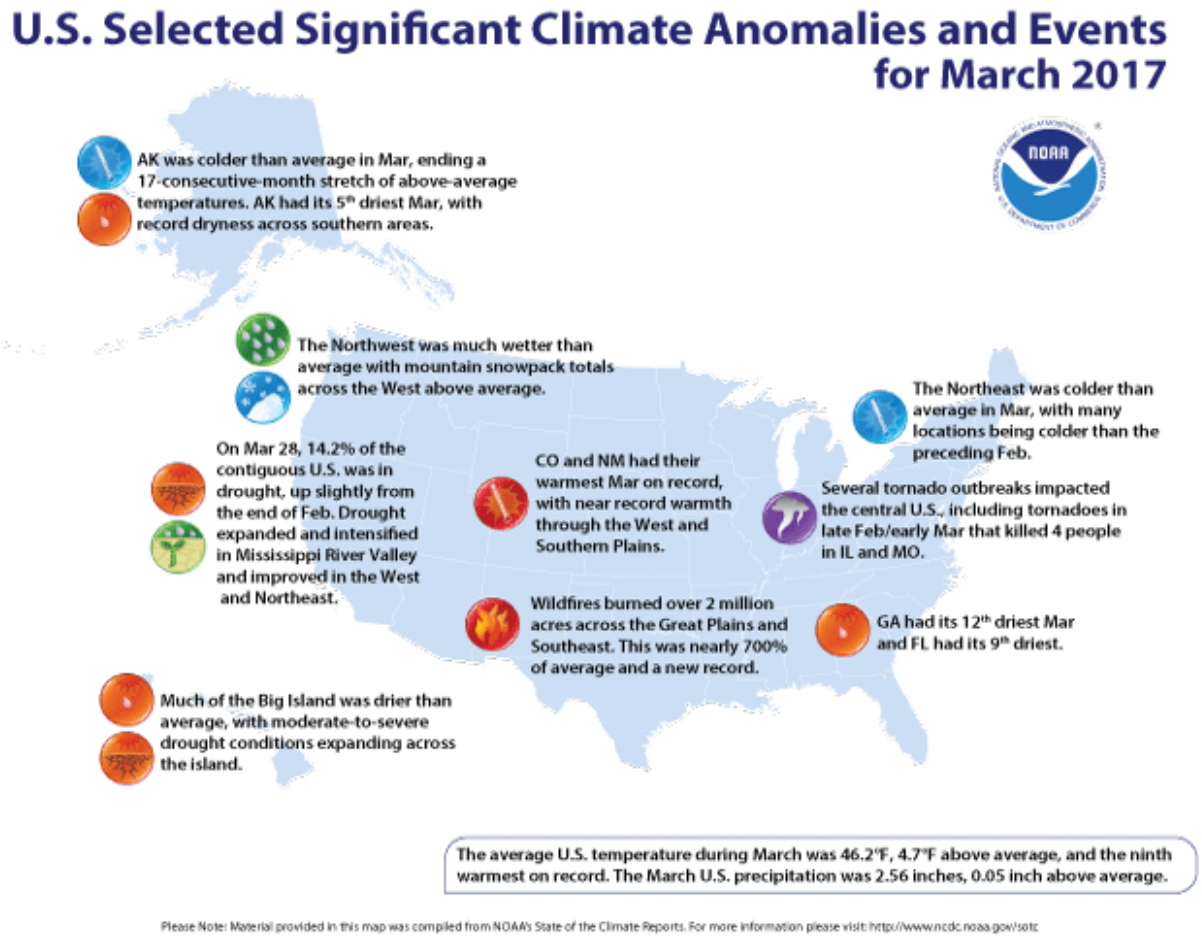


Figure 4: Highlights of U.S. climate events for March 2017.

U.S. Highlights for March 2017

1) The contiguous U.S. average temperature for March 2017 was 46.2 °F, the 9th warmest February on record.

2) The average March precipitation total for the contiguous U.S. came in at 2.56 inches, or 0.05 inch above normal.

3) According to the U.S. Drought Monitor, 14.2% of the contiguous U.S. was in drought.

Global Highlights for March 2017

1) The average temperature across global land and ocean surfaces for March 2017 was the 2nd warmest March in the entire period of record.

2) The March globally averaged sea surface temperature was 1.28°F above the 20th century average. This is the second highest global ocean temperature for March throughout the period of record.

3) ENSO neutral conditions were present in March 2017 and are now expected to continue into the fall.

March Report of Hydrologic Conditions by Greg Forrester, Lead Forecaster at NWS Glasgow:

March was a variable month across Northeast Montana for temperatures. Temperatures ranged from 4 degrees below normal at Sidney to 4 degrees above normal at Terry. Glasgow averaged 34.0 degrees which was 2.3 degrees above normal.

Precipitation was near normal in most areas. The wet spots were Brockton 20S with 1.15 inches, Plentywood with 0.98 inch, and Flatwillow with 0.91 inch. The dry spots were Brockway with 0.06 inch, Hoyt with 0.07 inch, and Cohagen with 0.15 inch. Glasgow received 0.49 inch which was 117 percent of normal.

The Yellowstone River, where unseasonably warm temperatures broke the ice up between February 19 and 23 upstream from Sidney, had ice refreeze as far upstream as Fallow during a period of bitter cold temperatures the second week of March. Ice jams formed in the Glendive area on March 11 and the river in that area hovered within one foot of flood stage until the ice jam broke up on March 14. The ice broke up in the Sidney area on March 17.

Unseasonably warm temperatures during the middle of the month melted the remaining snow cover along the Canadian and North Dakota border along with Poplar and Frenchman drainage areas that is in far southern Saskatchewan. This brought a mix of snow melt and ice jam flooding to the Frenchman, Rock, and Big Muddy Creeks and Poplar and Milk Rivers.

The Poplar River had snow melt and ice jam flooding on its middle and west forks in Daniels County between March 16 and March 20. An ice jam formed on the Poplar River in the Poplar area on March 17 producing flooding that lasted until March 20. Frenchman Creek flooded near the Canadian border between March 17 and 20. Big Muddy Creek had flooding between March 18 and 22 and the gage near Antelope reported a new record stage of 17.89 feet on March 20 which topped the previous record of 17.37 feet set on April 14, 1982. Rock Creek had flooding in the area where it empties into the Milk River near Hinsdale between March 18 and 20. While the Milk River had several ice jams and ran high between March 18 and 22, the only location in Glasgow HAS to reach flood stage was Tampico on March 19.

Ice generally broke up on the Milk, Poplar, Yellowstone, and Missouri Rivers between March 19 and 23. Stream flow was well above normal on all streams after the ice broke up.

The Fort Peck Reservoir elevation rose to 2236.1 feet. The reservoir was at 82 percent of capacity and 102 percent of the mean pool.

Links You May Like:

2017 U.S. Tornado Season's Hyperactive Start
Global Temperature Trends
Forecasting Drought Years In Advance?
CO2 and Plant Growth
Improving Hurricane Forecasts
April ENSO Update

CoCoRaHS Spring Season Online Training: Are you interested in becoming a new CoCoRaHS weather observer? Maybe you are already an experienced observer but you're just simply looking for some refresher material. NWS Glasgow will be doing an online CoCoRaHS training with a focus on spring time reporting in just a few weeks. Here's the information you'll need. We hope you'll consider becoming a highly valued part of this program!

When: Monday May 15, 2016 at 12:00PM to 12:30 PM MDT

Web Link: https://join.me/WRNMontana

Call Number: 877-929-2703

Passcode: 8072342#

Note: Please log in about 10 minutes early

Precipitation Data (March 2017):

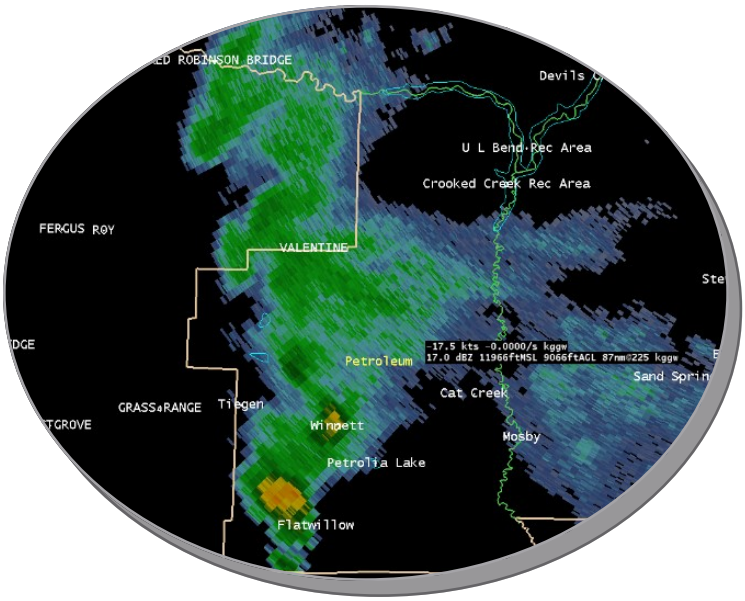
Station	Precipitation	Location
BAYM8	0.22	Baylor
BRDM8	0.56	Bredette
BTNM8	0.60	Brockton 17 N
BKNM8	1.15	Brockton 20 S
BKYM8	0.06	Brockway 3 WSW
BRSM8	0.42	Brusette
CLLM8	0.88	Carlyle 13 NW
CIRM8	0.71	Circle
CHNM8	0.15	Cohagen
CNTM8	0.46	Content 3 SSE
CULM8	0.46	Culbertson
DSNM8	0.24	Dodson 11 N
FLTM8	0.91	Flatwillow 4 ENE
FPKM8	0.11	Fort Peck PP
GLAM8	M	Glasgow 14 NW
GGWM8	0.49	Glasgow WFO
GGSM8	0.31	Glasgow 46 SW
GNDM8	0.73	Glendive WTP
HRBM8	M	Harb
HINM8	0.53	Hinsdale 4 SW
HNSM8	0.12	Hinsdale 21 SW
HOMM8	M	Homestead 5 SE
HOYM8	0.07	Hoyt
JORM8	M	Jordan
LNDM8	0.25	Lindsay
MLAM8	0.20	Malta
MLTM8	0.49	Malta 7 E
MTAM8	M	Malta 35 S
MDCM8	0.35	Medicine Lake 3 SE
MLDM8	0.42	Mildred 5 N

Station	Precipitation	Location
MSBM8	0.31	Mosby 4 ENE
OPNM8	0.89	Opheim 10 N
OPMM8	0.22	Opheim 12 SSE
PTYM8	0.98	Plentywood
POGM8	0.34	Port of Morgan
RAYM8	0.51	Raymond Border Station
SAOM8	0.25	Saco 1 NNW
SMIM8	0.07	St. Marie
SAVM8	0.77	Savage
SCOM8	0.45	Scobey 4 NW
SDYM8	0.91	Sidney
SIDM8	1.66	Sidney 2S
TERM8	0.25	Terry
TYNM8	M	Terry 21 NNW
VIDM8	0.45	Vida 6 NE
WSBM8	0.50	Westby
WTRM8	0.20	Whitewater
WHIM8	M	Whitewater 18 NE
WBXM8	0.47	Wibaux 2 E
WNEM8	0.49	Winnett 6 NNE
WNTM8	0.70	Winnett 8 ESE
WITM8	0.59	Winnett 12 SW
WLFM8	M	Wolf Point
ZRTM8	0.66	Zortman

Lightning Safety: We are well into the spring season now and while many are hopeful that temperatures will start to warm over the coming weeks, the threat for strong to severe thunderstorms will only start to increase. One thing to keep in mind is that **all thunderstorms**, not just those that become severe, pose a lightning hazard. Here's how to stay safe from the storm:

1) Plan. Be sure to arrange any outdoor activities in a way that you can avoid thunderstorms when possible. If there is a threat of thunderstorms in your area when you are going to be outdoors, keep listening to NOAA Weather Radio All-Hazards for the weather forecast before you head outdoors.
2) Know your safe places. Fully enclosed buildings and vehicles with a solid metal top and sides offer adequate safety from the dangers of lightning.
3) Use your indoor smarts. Avoid corded phones. Maintain a safe distance from electrical appliances, wiring, plumbing, and windows.
4) When Thunder Roars, Go Indoors! Stop outdoor activities and avoid elevated and open locations. Do not go near the water, tall objects, and avoid going under trees. If you are out on a boat, head back to shore. Seek shelter as soon as possible.
5) If caught in your car, point your vehicle into the wind. This will help you to benefit from the aerodynamics of the vehicle. Get down low, and cover your head with a coat or blanket.

Here is additional lightning safety information with a little more comprehensive detail. It's worth taking a look at to help you keep you and your family & friends safe this spring and summer season! If you're still thirsty for more, check this out too!



Here's a radar image that we shared on our social media pages around 4 PM on 4/23/2017 showing thunderstorms near Flatwillow, MT. This storm went on to become the first severe thunderstorm of the 2017 season in northeast Montana. It's highly likely that this season is just getting started, so we encourage you to keep this lightning safety information in mind. We'll be sharing much more severe weather safety information with you in the coming months to help you stay protected from summertime hazardous weather!

Monthly Trivia: Last month we asked…

Severe weather season is on the way once again for northeast Montana. Do you know the difference between a watch and a warning? An important reminder will be featured in next month's newsletter!

Answer: Check out the chart below for how you should think about a watch vs. a warning.

Watch	Warning
Conditions are favorable for the development of severe thunderstorms in and near the watch area. This generally is for the next 0-6 hours.	The severe thunderstorm (1" or larger hail and/or wind gusts to 58 mph or higher) or a tornado is either occurring or will be soon. This generally has a lead time of 0 to 60 minutes.
Watch Actions: Know where your safest place to shelter will be **(not a mobile or modular home)** Monitor radar, be prepared to go to a safe place before storms or warnings get to you Have at least two ways to receive future warnings (local radio, TV, text messages, NOAA Weather Radio, etc.) Put away outdoor items that could blow away Put away vehicles in sheltered locations As storms get closer, even before warnings may be issued, go to your "safe" location, bring family, friends, pets	**Warning Actions**: Seek immediate shelter in your safe location Lowest level of safe structure, away from windows and chimneys Have as many walls between you and the outside as possible Have a radio, smart phone, tablet/laptop with you to monitor situation In a car, wear seatbelt, and try to go south then west of the storm. If you cannot avoid it, pull over, lay down and protect head with a blanket

New Question: How hot is lightning? Read next month's newsletter to find out the answer to this one!

April2017 Summary (Glasgow, MT)

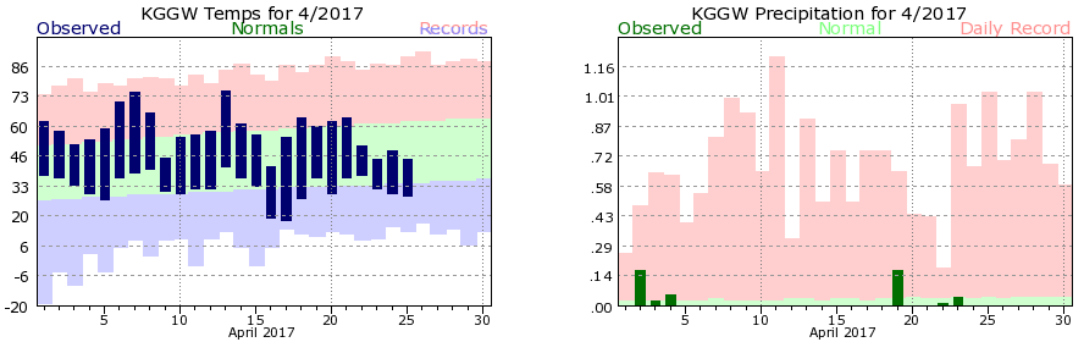


Figure 5: Observed temperatures for Glasgow relative to records and normal (left) and observed precipitation for Glasgow relative to records and normal (right) in April 2017.

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